

Envelope (Hüllkurven): ADSR: Die ADSR Kurve kommt zum Einsatz wenn auf dem Keyboard eine Taste gedrückt wird und das ein und ausklangsverhalten beeinflusst werden soll. Drückt man die die Taste wird der Ton bis zum ende der Attack Zeit auf sein Maximum erhöht, danach fällt er in der Decay Zeit auf den Sustain LEVEL ab und bleibt dort solange die Taste gedrückt ist. lässt man die taste los so fängt die release zeit an die das signal in einer bestimmten zeit auf 0dB Senkt

Frequency: the rate at which a sound wave completes one cycle in one second
300 Hz and below = Low, 300 Hz - 3.5 kHz = Mid-range, 3.5 kHz and above = High

Transducer (Signalumformer): bei Lautsprecher und Mikros
Lautsprecher: Elektrodynamisch (Dynamischer Lautsprecher), cone driver (kegeliger Treiber), diaphragm (Membran), Voice Coil (Schwingspule)

Mikrophone: Dynamische, Bändchen, Kondensator

Wiring (Verkabelung): Conductor (Leiter), Shield (Schirm), Ground (Erdung)
Phone , 1/4" or 6.5mm (große Klinke), Mini or 1/8" or 3.5mm (kleine Klinke), RCA (Cinch)

Polar Patterns (Richtcharakteristiken): Omnidirectional (Kugel, less sensitive to wind, response to sound pressure from all angles, z.b. lavalier & boundary mics), Unidirectional (Niere, most Handheld mics, greater sensitivity from the front), Hypercardioid (Hyper-Niere, more directional, boom mics), Supercardioid (Superniere, even more directional, ideal for when isolation is necessary (bleed)), Bidirectional (8er,mpicks up sounds equally from the front and back, good for duets, face-to-face interviews)

Mikrotechniken: Distance (1 or more mics placed approximately 1m from source (depending on size)), Close Micing (miking close to the source, pick up more direct sound, reduces the possibilities of phase cancellations), Ambient, Accent (Stützmikro, used to pick up a certain area (ensemble section, solo, etc.))

Stereo Mikrofonierung: Spaced Pair (AB Technik, 2 microphones placed in front of a sound source -spaced at a certain distance, mics are of same type, model & manufacturer), Coincidence Miking – Intensity Recording (mics can be closer to the source, XY Technik und MS Technik)

MS : Mittenmikro (Kugel, Niere, Mid-Side Technique, 2 separate mics or single-unit: Cardioid or Omni and a Bi-directional) Seitenmikro(8er)

XY: 2 mics - same directional pattern, 2 separate mics or single-unit

Mikrotypen: Handheld (Handglocke): muss nicht dynamisch sein, Lavalier (Ansteckmikro): condenser electret oder dynamisch, Boom (Angel): Meist mit Kondensator Keulenmikros in Verwendung. Bei größeren Abständen verliert die Keule wesentlich weniger an Signal und nimmt viel weniger Umgebung mit!

Amplifiers: electronic device used to boost (amplify) an electrical signal (voltage, current, impedance, power), many applications: amplify, equalize, match impedances, isolate and distribute signals

Crossover Networks (Frequenzweichen)

2-3 Treiber für: Subfrequenzen – Woofer, hohe Frequenzen – Tweeter, mittlere frequenzen - Mids

Aktiv: eigene Enstufe (Audiosignal Anschluss, XLR)

Passive: (Endstufesignal Anschluss: zb Speakon)

Frequency Response (Frequenzgang, Frequenzverlauf): output des mics bei konstantem on-axis Signal

Proximity Effekt (Nahbesprechungseffekt): anhebung der bässe durch nahes besprechen des mics, "popping" with "p's" & "b's"

Transient Response (Einschwingverhalten): Reaktionszeit des Miks

Dynamisch: eher lange, aufgrund der Trägheit der spule

Bändchen : ein bisschen besser

Condesator: wesentlich schneller

The Nyquist Theorem: the highest frequency that can be accurately reproduced has to be less than half of the sample rate: $44.1 \text{ kHz} \div 2 = 22,050 \text{ Hz}$

Aliasing: "the misidentification of a signal frequency, introducing distortion or error", distortion that occurs when frequencies higher than the Nyquist frequency are recorded

Quantisierung: Amplitude +1.0 ... -1.0 in digitale Werte Umwandeln

Sampling: Zeit in digitale Zeitabschnitte unterteilen

Schnittstellen:

AES / EBU: 2 Kanal über symetrische XLR leitung

s/p dif(Sony/Philips Digital Interface) 2 Kanals unsymetrisch (lichtwelle, cinch(coax))

ADAT Mehrkanal über lichtwelle

Lossless: wave, aif, FLAC// **Lossy:** MP3, AAC, M4A,WMA, RM, OGG

Harmonie: ganzzahlige vielfache der grundfrequenz, fundamental (grundton, grundfrequenz)

MIDI: Musical Instrument Digital Interface, protocol for electrical instruments to communicate (uses a 5-pin DIN connector) with each other - to send/receive data information

Trim: gain – boosts a mic or line signal (preamp), EQ: equalization, used to compensate for any signal discrepancies, Aux Sends: route & mix signals to various devices, i.e. effects processor, headphone monitor mix, Pan: moves a signal to left, center or right, Fader: adjusts the overall output level of the signal, Solo/Mute: solo - only the soloed channel(s) can be heard in the overall mix, Mute: channel's signal taken out of the overall mix

Reflections: sound bouncing off of hard surfaces (Echo (a reflection that has significant time delay, single or multiple repetitions of sound with a fixed timing), Reverberation(remainder of sound after the source has stopped, collection of many reflections))

Inverse Square Law: the intensity of sound diminishes with the square ($\sqrt{}$) of the distance

Compressor: reduces dynamic range of a signal that exceeds a specified volume (threshold)

Threshold: level set at which compression kicks in

Ratio: amount that a signal's volume is lowered:signal's output gain (2:1 = a 2 dB "peak" over the threshold will have an output will increase one dB)

Attack: how fast/slow the compressor reacts to a peaked signal

Release: how fast/slow the compressor lets go of the compression

Knee: how “hard” or “soft” the compressor reaches full compression once the signal reaches the threshold - control to adjust the transition

Limiter: type of compressor that limits the loudest sounds (if a ratio is set high enough - 10:1 - on a compressor it will become a limiter), prevention of digital clipping or analog overload - prevent levels from increasing beyond a specified level

Gate: filters out sounds below the threshold: signals above threshold pass while signals below are attenuated, useful for reducing unwanted noise: Noise Gate

Expander: acts like a gate, except reduces the signal by ratio rather than by volumes: dynamic range is proportionately increased, ability to increase overall dynamic range while lowering the noise floor

Types of Effects: Hard effects: sounds linked to an on-screen action, Ambience: background sounds, Natural Sound (nat sound): any sound that is recorded on tape - background (SOT - sound on tape), Foley: creating sound effects to on-screen actions - use of props

Äußeres Ohr: Pinna (Ohrmuschel), Meatus (Gehörgang), Tympanic Membrane (Trommelfell): wird in schwingung versetzt und leitet diese ans Mittelohr

Mittelohr

Ossicles (Gehörknöchelchen) transferieren schwingung an ovales Fenster

Malleus (Hammer)

I Incus (Amboss)

stapes (Steigbügel)

Oval Windows: Membran zwischen Mittelohr und Cochlea

Innenohr

Cochlea: Transferiert schwingung in nervenimpulse

Basilar Membran: durch flüssigkeit angeregt (Tonhöhe, Klangfärbung,...)

Organ of Corti (cortisches Organ): anfangs durch hohe frequenzen angeregt, umso weiter man fortschreitet desto höher frequenzen werden ausschlaggebend

Level: physikalische Größe in dB gemessen

Loudness: subjektive Lautstärke: phon (bei 1kHz)

Beats: “definite alternating swells and lulls of sound” [Benade], result of the ear’s inability

Localization: 2 ears = Binaural Localization